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ABSTRACT

Current trends in reporting and discussing the educational progress of disadvantaged urban children seem to be made without the benefits of recent findings in educational psychology, learning theory, studies of the effects of societal conditions on educational progress, or psychometric procedures. When these recent findings are considered, one would find that the characteristics such children bring to school are fixed behavioral patterns that are reinforced by their environments. Secondly, one would find that their underachievement is related to the discontinuity between their societal patterns and the prescribed educational referents. Therefore, the methods they use to solve problems are significantly different than those expected in the educational setting. For these and other reasons, methods to measure their ability to master educational tasks provide indices of the discrepancies between their cultural experiences and those offered in the educational setting. The circumstances which prevent disadvantaged children from being successful in school are not universal. They are complex and take on a variety of forms. To argue that a specific set of materials or educational programs will do the job for all urban children within a given school or at a given grade level would tend to suggest that the advocate neither understands the problem nor appreciates the situation. (Author/JM)

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Current trends in reporting and discussing the educational progress of disadvantaged urban children seem to be made without the benefits of recent findings in educational psychology, learning theory, studies of the effects of societal conditions on educational progress, or psychometric procedures. When these recent findings are considered, one would find that the characteristics such children bring to school are fixed behavioral patterns that are reinforced by their environments. Second, one would find that their underachievement is related to the discontinuity between their societal patterns and the prescribed educational referents. Therefore, the methods they use to solve problems are significantly different than those expected in the educational setting. For these and other reasons, methods to measure their ability to master educational tasks provide indicies of the discrepancies between their cultural experiences and those offered in the educational setting. When these data and findings are considered in this light, they will become meaningful data for improving the overall education of these children.

INVALIDITIES IN REPORTING AND DISCUSSING THE EDUCATIONAL PROGRESS OF DISADVANTAGED URBAN CHILDREN

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Over the past two decades there has been a national thrust to improve urban education. This thrust has been realized by direct pronouncements at the national level through federal acts (i.e., ESEA Title I), through national programs (i.e., Right to Read), and through the awarding of performance contracts (i.e., the Westinghouse Project). At the state and local levels, the thrust has been realized by the reallocation of personnel and materials resources with a special priority on reading.

Collectively, these expressions of concern for improved urban education have inspired many children, parents, communities, teachers, and school districts to make a more positive commitment to the total process and quality of education--particularly in the area of reading. The stated goals and expenditure patterns of both national and local programs imply the belief that given the appropriate learning conditions, every child can acquire at least one year of reading knowledge for each full year he spends in school. The goals further imply that every child will be able to read, at an employable level, when he is graduated from high school. And, for those high school students who wish to continue their education after graduation, the goals assure them that they will be able to qualify for and be successful participants in post-high school programs.

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Although the beliefs, aspirations, and involvement of the children, parents, communities, and educators are becoming more of a reality each day, their efforts are being thwarted (1) by those who would report on their progress without reference to recent findings in the areas of learning theory, child development, and educational research, as well as (2) by those who have the responsibility for the development and merchandizing school materials and achievement tests.

Recent Studies and Findings

In the early 1900, the prominent theory on the psychology of learning was that of Edward L. Thorndike. Thorndike's Laws of Effect and Exercise[1] became the tenents upon which the practices and philosophy of education were formulated. Because Thorndike was a behavioristic psychologist, his laws and theories were basically a variation of the stimulus-response (S→R) format: for a given stimulus there is an associated response whose permanence is fixed through repeated use and/or appropriate reinforcements. Hence, educators began to assume (a) that there was only one appropriate answer (response) to a given learning stimulus and (b) that that response could best be learned through one "standardized" procedure. Furthermore, it became an acceptable practice to believe that learners who did not respond to the standardized procedures or who gave alternative responses to the learning stimuli were either "ill-prepared" or did not possess antecedent knowledges and behaviors.

Axiom$_1$: Improper Linkage Between Fundamental Skills and Knowledge Produce Patterns of Underachievement

However, a closer look at the work of other psychologists would reveal that more than one response can be associated with a given stimulus. The converse of this condition can also exist, that is, many stimuli may be associated with one response. The work of Pavlov[2] showed that during a learning and/or conditioning episode, the learner (organism) develops a variety of sensory and motor associations. However, Pavlov showed, through controlled experiments, that emergent stimulus-response patterns occurred only after the learner had learned to discriminate between the various sources of stimuli. He was able to demonstrate that he could get the learner to respond repeatedly to any one of the many stimuli within a given stimulus sets (hierarchy) through a highly structured and selective reinforcement process.

B. F. Skinner's distinction between respondent behavior (elicited by specific stimuli) and operant behavior (emitted by the organism) adds clarification and support for $Axiom_1$. Of the two behaviors, Skinner believes that operant behavior is the more important because through it the organism operates on his environment.[3] That is, the shaping of the organism's behavior is achieved through the content and frequency of the reinforcements he receives from his environment after he has emitted an operant behavior. Or, stated in a different fashion, the nature of one's environmental reinforcers determines the probability of the reoccurrence of an operant behavior. Futhermore, environmental reinforcers which are positive and satisfy the engendered needs of the organism are those toward which the attention of the organism is directed. A sociologist, Zigler,[4] has described operant responses in terms of a socialization process: "As the child incorporates the values of his culture, he seeks its rewards or reinforce-

ments, and is further incorporated into that culture by behaving appropriately (p. 29)." If one integrates the paraphrased treatment of Skinner's concepts with the socialization definition of Zigler, three significant corollaries seem to emerge:

(1) The intentions and directions of operant behaviors are universal.

(2) The composition and characteristics of one's environment determines the latitude and uniqueness of his operant responses.

(3) Socially desired patterns of operant responses (shaped behavior), although contiguous at some points, are not uniformly distributed within, across, or over socio-economic groups, or cultures.

These three corollaries seem implicit in the conclusions reached by Gordon in her study of the modifiability of human potential.[5] She suggested that the reported differences between ethnic groups might be best explained by the relative importance each of the measured abilities would have within the ethnic groups. Therefore, those groups having the sets of operant responses which are most contiguous with defined school-achievement referents would tend to be successful in the school setting. Whereas, those groups having developed operant responses that have a high success value in their environments but low associative values with school-achievement referents would enter school with definite learning disadvantages.

The studies of Deutsch, et al.,[6] elucidate the relationships between preschool-achievement referents (requisite needs) and compensatory

education. Their studies of the sociological factor which influence learning have revealed two important facts:

(1) Prelearnings and experiences which make a child successful in school are related to his social, economic, and health levels;

(2) Children entering school without requisite prelearnings and experiences enter with a learning disadvantage.

Other scientists, seriously concerned with this problem, have found that two requisite areas in which disadvantaged urban children usually show the greatest weakness are sensory perception and discrimination[7] and cognitive integration.[8] More specifically, disadvantaged children, being exposed to a limited number of oral, aural, and visual experiences, enter school with a low response-range to sensory stimuli and a temporary inflexibility to cognitive processing operations (e.g., classification, seriation).

Axiom$_2$: Underachievement = Discontinuity Between Societal and Educational Referents

In an attempt to explain the impact of requisite learnings, knowledges, and experiences on pupil achievement, the author and others have consulted research studies in related scientific areas (e.g., information processing, neurophysiological research, physiological psychology, systems and network analysis). Following from these considerations is a broader definition of learning. Learning is a process wherein current sensory information is combined (integrated) with past information and/or experiences to produce a rational solution (answer) which is most

compatible within the life-experiences and reinforcement patterns of the learner. Findings from these associated studies have suggested that unique sets of cognitive functions and strategies exist (e.g., retrival, synthesis, verification). In the learning process these and like cognitive sets combine to formulate mechanisms (assemblies, phase cycles[9]) for solving simple and complex learning episodes. However, although a large number of possible combinations and/or permutations exist among the processing sets for a given learning episode, only a few are both efficient and effective. Therefore, it would appear as if formal education is a process by which children are taught to utilize the most effective and efficient means for solving problems.

The formalized postulates of Clark L. Hull[10] permit a systematic investigation of those external and internal forces (variables) which effect the manifestation of behavior or learning. The postulates of Hull, although more heuristic than those of Skinner, are directed toward identifying and quantifying those reactions and inclinations which produce the overt response which Skinner defined as operant behavior. (It should be noted that Skinner chose to explain what happened in response to an emitted operant behavior, while Hull chose to explain the mechanisms which were associated with the expression of that behavior.) Hull deduced four major variables: drive, incentive motivation, habit strength, and excitatory potential. While drive, incentive motivation, and habit strength can be measured directly; excitatory potential, an "intervening variable," was logically deduced from the relationships among the aforementioned independent and dependent variables.

Through experimentation Hull found that each of the four

variables had a specific function, which was related to its own determination as well as to the expression of behavior and learning. These and other experiments led him to conclude that learning does occur within an organism even when there are no outward signs to confirm the learned skills/knowledge. Through his concepts of individual threshold and oscillation, he was able to show (a) that change in the magnitude of one or all of the three independent variables (drive, incentive motivation, habit strength) could produce excitatory potential levels which are below the individual's response level and (b) that the individual's excitatory potential level was not always the same, but oscillated along a pattern which tended to assume a normal distribution.

Translated into the performance patterns of disadvantaged urban children, this theory implies that a disadvantaged child might have learned/acquired a large volume of knowledge or skills, but still not be able to demonstrate such acquisitions. So, when such a child is given a written examination or is called upon by his teacher, he could react in either of three ways. First, he could respond and gives the appropriate answer. Second, he could respond and gives an inappropriate answer. Third, he could refuse to respond or participate in the classroom activities.

The implications of the first alternative response is obvious. However, the implications of the second and third alternatives need clarification. In response two, the child might not have transferred his acquired knowledge/skills because he had not received enough instructional time or reinforcements to attain his personal readiness level (confidence of mastery). Condition three would suggest that the child has either a low drive level and/or

lacks sufficient incentive motivation.

These examples, within the context of the theory, imply that disadvantaged urban children might not demonstrate gains in performance because ample considerations have not been given to those conditions [in the learning environment] which maximize their potential to express achievement [e.g., teacher/material interactive-time, relevancy (incentive) of learning, individual perception (reinforcements) of mastery].

In a study comparing the reading and arithmetic performance patterns of high- and low-achieving eighth-grade students,[11] the author found that one of the major differences between the two groups' performance was the kinds and variety of information each used to solve the problems offered in a standardized achievement test. The high-achieving students used those skills and knowledges that are known to be directly related to the solution of the stated problems. Low-achieving students, in contrast, used skills and knowledges that were only indirectly related to the stated problems.

A closer study of the problem-solving techniques of the low-achieving students revealed that the skills and knowledges they used were integrals of basic cognitive abilities rather than the complex, integrated skills used by the high-achieving students. It seemed as if the low-achievers had not learned to merge their fundamental skills and educative knowledges into the more appropriate cognitive functions and strategies. And, in those instances where they had formed less productive associations, the level of proficiency they had in using them was extremely low. For example, low-achieving students did not use the arithmetic concepts measured by the test to solve arithmetic problems.

The findings and discussions of the studies cited above have direct relevance to the study of the relationships between the social and learning referents disadvantaged urban children bring to school, and their subsequent interactions with structured curriculum materials and standardized tests. The cited studies strongly suggest that the association patterns which these children bring to school are different than those of children from upper- and middle-socioeconomic communities. Therefore, the observed disparities between the two groups should not be construed to be intrinsic or absolute differences; but rather, functional differences predicated upon the reinforcement and association patterns each group experiences. When treated in this manner, these disparities are not occasions for dispair but indicators which direct us to those instructional areas around which supplementary services should be provided. And, these supplementary services need not be thought of as being remedial. They should represent transitional training--that is, services which improve the correlation between the environmental reinforcers of disadvantaged urban children and the educational referents of the school environment.

In every urban school there are disadvantaged children who have taught themselves how to make appropriate correspondences between their past and present experiental referents and their concurrent educational requisites. When this accommodation is done within a reasonable period of time, the disadvantaged urban child is considered to be an "overachiever." If the accommodation occurs over an extended period of time, the disadvantaged urban child is considered to be a "late bloomer." Regardless of the term applied, such cases illustrate that when urban disadvantaged children make such linkages their capability and capacity to learn equals that of others.

And, maybe urban disadvantaged children, in the main, are not successful in school simply because they have not learned how to make meaningful correspondences between their past referents and the requisite conditions of the schools.

Educational Materials and Programs

The previous sections suggest that the circumstances which prevent disadvantaged urban children from being successful in school are not universal. They are complex and take on a variety of forms. And, although the explication of these circumstances produce a singular outcome--underachievement, the solution to the problem does not rest in one master program or series of materials. Indeed, to argue that a specific set of materials or educational program will do the job for all urban children within a given school or at a given grade level would tend to suggest that the advocate neither understands the problem nor appreciates the situation.

Those companies and individuals who profess that they have developed materials/programs that guarantee immediate success or "normal" pupil progress are creating expectations (a) which understate the programmatic needs of the pupils and (b) which play upon the legitimate desires of the schools and the society to improve compensatory education. Such expectations are invalid in that what they propose does not produce immediate or sustained pupil progress. This low success probability exists because such programs ignore the findings cited previously. For, if disadvantaged urban children are unsuccessful in school for the reasons cited (i.e., patterns of social reinforcement, discontinuity between societal and school referents), then those programs which tend to stress

monomorphic and/or homogenous treatments cannot be expected to supply the kinds of content which would permit disadvantaged urban children to map their societal experiences onto appropriate school referents.

Throughout the studies and theories cited, two recurrent considerations appeared which would guide one toward the development of productive educational programs and materials. That is, if disadvantaged urban children are to become more successful in the schools,

(1) instructional programs must be designed that have a high level of diagnostic concordance between pupil needs and instructional components--regardless of the level and form these components must take; and

(2) instructional programs must provide adequate time and rewarding reinforcements which initiate, promulgate, and maintain those optional school conditions which foster successful learning experiences and human dignity. For without such considerations, instructional programs are symptomatic expressions of current trends rather than prescriptive inputs to alleviate learning problems.

Standardized Tests

Those who would construct, sell, and distribute measures of achievement, intelligence, and educative abilities/skills are contributors to the problem under discussion. They must become more sincerely interested in the problem of measuring educational outcomes. They should begin to report indicies and classifications which describe the abilities, skills, and educative integrals which are reflective of the individual status their tests purport to measure. For example, tabulations of the number of pupils who get specific items correct (item analysis) are useless without a cross-tabulation showing the relative skills associated with

each item. This is especially true if the items of their tests are of increasing difficulty and, thereby, require higher and higher levels of cognitive integration. If this were so, acquired scores could be correlated with skill configurations (hierarchies) identified at specified periods in the educative process. Moreover, such information would be useful to curriculum writers and program administrators who must make decisions about the modification of instructional inputs.

This understanding of a test score as a measure of an acquired psycho-educational process is consistent with the theory of psychological testing, which states that a known psychological continuum should be associated with (mapped onto) the reported performance (scalar) scores.[12] Following from this concern for correlating psychological continua with achievement performance scores would mean a renewed emphasis for ascertaining the joint reliabilities between the constructs of a test, its items, and the scoring procedure which produces the final scores. For without the confirmation of such studies, test scores might not be producing a range of pupil competencies from poor to excellent, but rather a status reference which predicts the rank placement of the pupil along a hypothetical scale derived from tests having similar characteristics (high intercorrelations).

Tests which either reflect the rank of students in the aggregate or demonstrate the relative position of a child on a well-defined psychological trait (continuum) are both relevant and essential. However, the times, circumstances, and the lives of disadvantaged urban children dictate (a) that these kinds of information be used precisely and without undue bias and (b) that unwarranted claims not be made which place the

efforts to educate them in jeopardy.

Conclusion

Compensatory education is under attack from all sides. And, in an effort to improve the output for such expenditures, the schools and the community have turned to those professionals who have the responsibility for measuring and evaluating such programs. They wait with abated breath to learn whether the large investment of monies spent for education is producing meaningful results. And, if not, what should be done to improve the situation. For, if educational research and evaluation is not able to deliver reliable information, the public and educators will begin to demand other alternatives for education which may be more ineffective than the present system.[13]

Therefore, as members of this most essential profession, we must surrender our complacency to a concerted force to engage those forces and conditions that would tend to disuade current efforts to improve compensatory education. As was illustrated in the previous sections, when a comprehensive study is made of primary and secondary sources, a simplistic picture of underachievement is no longer possible. As interested partners, we must insist upon using the most appropriate knowledge, information, and procedures (a) when developing programs for disadvantaged urban children, (b) when documenting the learning/instructional processes in which these children are engaged, (c) when assessing the academic and social progress of these children, and (d) when reporting the results of the impact of such programs and expenditures.

For example, if an instructional program has been designed to

build fundamental skills which are implicit in the items of a test and, therefore, are not discriminated in the scoring procedure, then that test is not an appropriate instrument for measuring changes in the pupil's ability to use such skills. Likewise, neither would it be appropriate to assume that the pretest scores on such an instrument could be the covariate in an analysis of covariance.

In cases in which an instructional program is being implemented to improve the proficiency of urban children in the use of a basic skill, it is not appropriate to measure the impact of such inputs during the first year of the program when the thrust of the prescribed components is to reconstruct the cognitive structure/process of the pupils. Therefore, the first year of such a program is a "tooling-up" period in which the non-productive habits/traits of the pupils are being reconstituted to form more productive cognitive sets that will permit them to become more successful in solving similar or more complex problems. For if the program were effective, the transference of knowledge/skill would be exemplified in the following year(s).

In this behalf, a distinction should be made between status and progress reporting. Status reporting is operationally defined as those circumstances when one wants to determine how a particular group/pupil ranks with others at that grade level at a particular time of the year. For this purpose, national or local percentile ranks should be used. However, if one is interested in determining whether a particular group/individual has made any measurable progress over a designated period of time, then grade equivalent or scale scores are appropriate, where alternate forms of the same test are used. For although grade

equivalent and/or scale scores may be easily transformed to percentile ranks, there appears to be a historical effect implicit in the latter assessment. That is, since status reports are made on an annual basis, groups/pupils who remain at the same percentile rank would have had to acquire some decrement of change which is attributed to age, grade, and school exposure. Therefore, if a group/pupil remains at the same percentile rank over a number of years, an increase in (maturation) mentality would have probably occurred without a concomitant change in educational stature.

Within the larger context, inferential procedures are to be discouraged during those instructional periods when the pupils are being expected to assimilate knowledge/skills which will facilitate their future learnings. That is not to say that evaluations are not to be conducted, but rather that these assessments take the form of either nonparametric (descriptive) techniques which measure changes in the distribution of the specified learnings within the target group, or process methods which report the number of pupils who attain a specified level of mastery.

For when we chose to use these kinds of considerations when reporting on the progress of disadvantaged urban children, we will be better able to determine the educational needs of these children; we will be better able to systematically reduce the misconceptions about their ability to learn and achieve; we will be better able to make a significant impact on compensatory education; and we will be better able to assist in mending the rifts that have been dividing the peoples of our country.

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